

## **DETAILED ACTION**

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Douglas B. McKnight (Reg. No. 50,447) on 26 May 2009.

The application has been amended as follows:

- (1) Claim 7, line 4, --detector-- has been inserted before "elements".
- (2) Claim 7, line 5, "detector" has been deleted.
- (3) Claim 23, line 2, "grid" has been deleted.

### ***Allowable Subject Matter***

2. Claims 1, 3-16, and 18-25 are allowed.
3. The following is an examiner's statement of reasons for allowance:

With respect to claim 1, the prior art discloses a two-dimensional radiation detector that comprises: an anti-scatter module; a first alignment means for aligning the anti-scatter module with a spatial focus; a second aligning means for aligning the anti-scatter module; a detector subassembly module, each detector subassembly module including a substrate and an array of detector elements arranged on the substrate to detect radiation; and a radiation absorbing mask

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formed as a grid and arranged between the array of the detector elements and the anti-scatter module; wherein the second aligning means includes alignment pins that aligns the anti-scatter module with the detector subassembly module. However, the prior art fails to disclose or fairly suggest that the second alignment means further includes: alignment openings disposed on the substrate; and alignment openings disposed on the radiation absorbing mask; wherein the alignment pins are disposed on the anti-scatter module such that inserting the pins into the radiation absorbing mask openings and the substrate alignment openings aligns the detector element array with the radiation absorbing mask and the anti-scatter module.

With respect to claim 14, the prior art discloses a computed tomography scanner that comprises: an x-ray source mounted to rotate about an examination region, the x-ray source emitting a cone shaped x-ray beam from a radiation focal point and traverse the examination region; a two-dimensional radiation detector which receives the cone beam that has traversed the examination region, the radiation detector including a plurality of detector modules, each detector module including: an anti-scatter module, a detector subassembly module aligned with the anti-scatter module, each detector subassembly module including a substrate and an array of detector elements arranged on the substrate to detect radiation, and a radiation absorbing mask formed as a grid, the mask being arranged between and aligned with the array of detector elements and the anti-scatter module; and a reconstruction processor for reconstructing signals from the detector element array into a volumetric image. However, the prior art fails to disclose or fairly suggest an anti-scatter module including alignment pins, wherein the alignment pins of the anti-scatter module extend through alignment openings in the mask and alignment openings in the detector subassembly module as claimed.

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With respect to claims 15, 16, and 18-20, the prior art discloses a method for manufacturing a radiation detector for a computed tomography scanner, the method comprises: aligning an anti-scatter module, which includes extending alignment pins, with a detector subassembly module including a substrate and an array of detector elements arranged on the substrate to detect radiation, and a radiation absorbing mask disposed between the anti-scatter module and the detector elements of the array. However, the prior art fails to disclose or fairly suggest inserting the alignment pins through alignment openings in the mask and alignment openings in the detector subassembly module as claimed.

With respect to claims 21 and 22, the prior art discloses a radiation detector that comprises a plurality of detector modules, each detector module including: an anti-scatter module, including a plurality of vanes and alignment pins. However, the prior art fails to disclose or fairly suggest a rectangular grid that includes: a plurality of wider strips, arranged parallel to each other, each wider strip being wider than a width of each vane; and a plurality of thinner strips, the plurality of thinner strips being arranged perpendicular to the wider strips to form uniform openings, each wider strip is aligned with a corresponding vane as claimed.

With respect to claims 24 and 25, the prior art discloses a two-dimensional radiation detector that comprises: an anti-scatter module; a first alignment means for aligning the anti-scatter module with a spatial focus; a second aligning means for aligning the anti-scatter module; a detector subassembly module, each detector subassembly module including a substrate and an array of detector elements arranged on the substrate to detect radiation; and a radiation absorbing mask formed as a grid and arranged between the array of the detector elements and the anti-scatter module; wherein the second aligning means includes alignment pins that aligns the anti-

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scatter module with the detector subassembly module. However, the prior art fails to disclose or fairly suggest that the radiation absorbing mask includes first alignment openings and the detector subassembly module includes second alignment openings, and the alignment pins extend through the first alignment openings of the radiation absorbing mask and the second alignment openings of the detector subassembly module.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### ***Response to Amendment***

4. Applicant's amendments filed 13 May 2009 with respect to claims 1, 6-8, 12, and 23 have been fully considered. The rejection of claims 1, 6-8, 12, and 23 under 35 U.S.C. 103(a) as being unpatentable over Igarashi *et al.* (U. S. Patent No. 6,587,538 B2) in view of Adachi *et al.* (U. S. Patent No. 6,304,626 B1) has been withdrawn.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 9:00 am - 6:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allen C. Ho/  
Primary Examiner  
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26 May 2009